

Remarks

Claims 1-3, 5-12, 14-19, 21-28, and 30-32 are pending in this application. The Examiner has rejected claims 1, 3, 6-12, 15-17, 19, 22-28, 31 and 32 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,774,647 to Raynham et al. in view of U.S. Patent No. 4,240,143 to Besemer et al. Claims 2, 5, 14, 18, 21 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynham in view of Besemer in further view of PCT/US1999/99/05599 to Brisse.

A. Independent Claims 1, 9, 17 and 25

To establish a prima facie case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be a reasonable expectation of success. Finally, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The combination of Raynham and Besemer all fail to teach or suggest all the claim limitations of independent claims 1, 9, 17, and 25. Raynham, taken alone, fails to teach or suggest the claimed element of an error log comprising information identifying the cause of the occurrence of an error. Besemer, taken alone, fails to teach or suggest memory modules comprising random access and non-volatile memory sections and also fails to teach or suggest creating a log including information about the cause of an error and storing the log in the non-volatile memory of a memory module. Besemer does not teach or suggest that a memory module

comprises a random access portion and a non-volatile portion, as no mention of the word “non-volatile” is made in Besemer. Additionally, the cited portion of Besemer at column 23, lines 42-45 does not teach or suggest a **log** including information about the cause of an error. Besemer states, “The GMC 20 carries out error detection, but it only corrects bit 48 so that the ‘protected write’ operation used in the typical B 6000 series computers will function properly.” (Besemer, col.23:42-45) This statement does not teach or suggest a log at all, and does not teach or suggest a log including information about the cause of an error. Rather, the cited portion of Besemer only addresses error detection and correction. The cited portion of Besemer at column 30, line 31 through column 31, line 13 also does not teach or suggest creating a log including information about the cause of an error and storing the log in the non-volatile memory of a memory module. Besemer discusses error correction (particularly in bit 48), specifically single bit and multiple bit errors. (col.30:31-38) Additionally, Besemer mentions setting an error flag for the memory module in various circumstances. (col.30:45-47) However, setting a **flag** is **not** equivalent to storing a **log** of information, where the log includes information about the type of error (among other types of information such as timestamp). Additionally, no indication is given by Besemer that the flag which is set is set in non-volatile memory, as required by the claimed elements (col.30:45-47). The combination of Besemer and Raynham does not teach or suggest creating a log including information about the cause of an error and storing this log in the non-volatile memory of a memory module.

There is no expectation of success for the combination of Raynham and Besemer. The preferred embodiment of Raynham’s error log (which does not contain information about the cause of an error) is to have two error logs implemented as circular buffers: the correctable error log having 32 two-byte memory locations, the non-correctable error log having 4 two-byte

memory locations, and each error log entry being two bytes in size for a timestamp. (Raynham, col:10:23-27) Raynham only provides for a small, fixed set of space in the logs for information pertaining to timestamps. Even though over 15 years passed between the issue date of Besemer and the application date of Raynham, Raynham does not accommodate for any further information, including information regarding the cause of an error (in the form of a flag). Furthermore, Besemer states only that a flag is set in the case of an error, but does not explicitly provide for a way to store information about whether an error is “correctable” or “non-correctable”, as would be required to properly function in combination with Raynham’s logs. Thus, the combination of Besemer and Raynham would not be expected to succeed for the above reasons.

A prima facie case of obviousness has not been established because the combination of Raynham and Besemer do not teach all of the claimed elements of independent claims 1, 9, 17, and 25 and because there is no expectation of success in combining the inventions of Raynham with Besemer. Thus, the rejection of claims 1, 9, 17, and 25 under 35 U.S.C. 103(a) should be withdrawn.


B. The Rejection of Dependent Claims 2, 3, 5-8, 10-12, 14-16, 18, 19, 21-24, 26-28 and 30-32

The rejection of dependent claims 2, 3, 5-8, 10-12, 14-16, 18, 19, 21-24, 26-28 and 30-32 will not be discussed individually herein, as each of these claims depends, either directly or indirectly, from an otherwise allowable base claim.

Conclusion

Applicant respectfully submits that the pending claims 1-3, 5-12, 14-19, 21-28, and 30-32 of the present invention, as amended, are allowable. Applicant respectfully requests that the rejection of the pending claims be withdrawn and that these claims be passed to issuance.

Respectfully submitted,



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